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ABSTRACT

This study investigated relationships between interpersonal dependency and: (1) the ability to generate creative ideas; (2) the tendency to give creative responses on tasks that elicit creative thinking; and (3) comfort with tasks that elicit creative thinking. It is conceivable that interpersonally dependent students, because they desire the approval of others, may be reluctant to use learning strategies that involve creative thinking. They perceive these strategies as being more risky. However, it seems unlikely that interpersonal dependency could impair an individual's ability to generate creative ideas, even if it restricts the use or reporting of such ideas. Participants were 134 students in grades 10 through 12, attending a public suburban high school in southern California. Interpersonal dependency was assessed using the Interpersonal Dependency Inventory. Creative ability was assessed using Topics Tests (R. B. Eckstrom, J. W. French, and H. H. Harman, 1976). Creative response and comfort were assessed using questions about two poems. Results from this study suggest that participants with higher levels of interpersonal dependency are equally capable of generating creative ideas and equally likely to give creative responses on tasks that elicit creative thinking. However, they tend to feel less comfortable with tasks that elicit creative thinking as compared with their counterparts with lower levels of interpersonal dependency. (Contains 1 figure, 5 tables, and 22 references.) (Author/SLD)

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ED 412 232

Running head: INTERPERSONAL DEPENDENCY AND CREATIVE THINKING

Interpersonal Dependency and Its Relation to Creative Thinking:

An Exploratory Study

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Submitted: April 10, 1997

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Abstract

This study investigated relationships between interpersonal dependency and 1) ability to generate creative ideas, 2) tendency to give creative responses on tasks that elicit creative thinking, and 3) comfort with tasks that elicit creative thinking. It is conceivable that interpersonally dependent students, because they desire the approval of others, may be reluctant to use learning strategies that involve creative thinking, because they are perceived as being more risky. However, it seems unlikely that interpersonal dependency could impair an individual's ability to generate creative ideas, even if it restricts the use or reporting of such ideas. Participants were 134 students, grades 10 through 12, attending a public, suburban high school in southern California. Interpersonal dependency was assessed using the Interpersonal Dependency Inventory. Creative ability was assessed using Topics Tests. Creative response and comfort were assessed using questions about two poems. Results from this study suggested that participants with higher levels of interpersonal dependency were equally capable of generating creative ideas and equally likely to give creative responses on tasks that elicit creative thinking, but they tended to feel less comfortable with tasks that elicit creative thinking, as compared to their counterparts with lower levels of interpersonal dependency.

Interpersonal Dependency and Its Relation to Creative Thinking: An Exploratory Study (Submitted: April 10, 1997)

Studies investigating relationships between personality and learning strategies have tended to focus on personality types (Knutson, 1995; Rothschild, 1994), often measured by the Myers-Briggs Type Indicator (Brownfield, 1993; Moody, 1991). However, few studies have considered how specific personality attributes might be associated with the development of individual learning strategies. This study examined how the personality attribute known as interpersonal dependency influences the likelihood of using creative thinking in learning situations.

Interpersonal dependency refers to "a complex of thoughts, beliefs, feelings, and behaviors which revolve around the need to associate closely with valued other people" (Hirschfeld, Klerman, Gough, Barrett, Korchin, & Chodoff., 1977, p.610). Interpersonal dependency is manifested through an individual's over-reliance on other people for guidance, protection, and support (Bornstein, 1992). Interpersonally dependent people tend to base their self-perception, self-esteem, and confidence on how other people perceive them. As a result, the behaviors of interpersonally dependent individuals often reflect approval seeking and a motivation to obtain and maintain support (and acceptance) from others. However, interpersonal dependency is not pathological, in and of itself; rather, it is regarded as "an element of normal adult personality structure" (Hirschfeld et al., 1977, p.610).

Creative thinking is characterized as an inquiring, flexible, and unconstrained thought process that produces ideas which may be unconventional, but are oftentimes

insightful. When used in learning situations, creative thinking can be conducive to more effective learning because it requires students to take initiative in their learning, it helps students to internalize rather than simply memorize information, and it emphasizes long term (i.e. mastery-related) goals, as opposed to short term (i.e., performance-related) goals (Downs, 1993; Collins, 1992; Fogarty, 1988).

Crutchfield (1961) suggested that all people are capable of creative thinking because all of the relevant cognitive and motivational processes that account for creative thinking can be found in every individual. However, creative thinking must be developed. In most people most of the time, the creative thinking process "gets blocked, diverted, diluted, or corrupted by other antithetical processes going on in the individual at the same time (Crutchfield, 1961, p.1). It is conceivable that interpersonally dependent individuals, because they desire the approval of others, may be reluctant to use learning strategies that involve creative thinking, because they are perceived as being more risky. However, it seems unlikely that interpersonal dependency could impair an individual's ability to generate creative ideas, even if it restricts the use or reporting of such ideas.

This study addresses three research questions: 1) Is ability to generate creative ideas related to interpersonal dependency?, 2) Is the tendency to give creative responses related to interpersonal dependency?, and 3) Is comfort with tasks that elicit creative thinking related to interpersonal dependency? I hypothesized that individuals with higher levels of interpersonal dependency would be equally capable of generating creative ideas and equally likely to give creative responses to tasks that elicit creative thinking, but they would feel less comfortable with tasks that elicit creative thinking and therefore be less

likely to use creative thinking when they have no incentive to do so, relative to individuals with lower levels of interpersonal dependency.

Research Design

Participants

Participants were 134 students (46 male and 88 females) from a public high school in Southern California who volunteered to participate, with the consent of their parents or guardians. The sample consisted of 21 tenth graders (13 females and 8 males), 59 eleventh graders (41 females and 18 males), and 54 twelfth graders (34 females and 20 males). Participants were predominantly White and from middle-class families.

Procedure

Test packets were administered to participants during six 50-minute English classes on a regular school day. Instructions were read from a script by a researcher. Participants were informed that the study was about the effect of personality traits on learning. Each section of the test packet was timed to ensure that participants had sufficient time. In addition to responding to the test packets, participants were asked to provide background information, which included their age and gender.

Measures

Test packets included measures of interpersonal dependency, the ability to generate creative ideas, the tendency to give creative responses, and comfort level with tasks that elicit creative thinking. A preliminary examination of the data revealed several cases with missing data. As this study contained only 134 observations, missing data were imputed when possible in order to retain observations with otherwise complete data.

Outcomes

There are three major outcomes in my analysis: creative ability, creative response, and comfort. Below, I outline the methods that I used to construct a composite measure of each.

Creative ability. Topics Tests (Eckstrom, French, Harman, 1976) were used to assess participants' ability to generate creative ideas. Participants were asked to generate ideas about two topics ("A man going up a ladder" and "Walking through a forest") in a manner similar to brainstorming. Participants were encouraged to list all of their ideas, whether or not they seemed important; they were allowed three minutes to respond to each topic.

Mednick (1964) suggests that there is an associative basis to the creative process. Similarly, Gardner (1988) suggests that creativity involves "the number of associations an individual can produce to a stimulus and the unusualness of those associations" (p.11). Consequently, participant's responses were evaluated for the fluency, flexibility and originality of their ideas. Fluency was indicated by the number of individual ideas that a participant generated in response to a topic. Flexibility was indicated by the number of categories represented by a participant's ideas. Originality was indicated by the number of unusual or uncommon responses that a participant generated in response to a topic. In light of Guilford's (1967) proposition that originality tests should emphasize 1) the ability to produce responses that are statistically rare in the population, 2) the ability to produce remotely related responses, or 3) the ability to produce clever responses (p.154), clever

and remotely related responses were considered to be "original" if they were given by less than five percent of the sample.

A composite score for "creative ability" was constructed using a principle components analysis of participants' Total Fluency, Total Flexibility, and Total Originality scores from the two topics tasks. Consistent with moderately strong, statistically significant inter-correlations (low $r = 0.529$; high $r = 0.688$) among Total Fluency, Total Flexibility, and Total Originality, there appeared to be one single dimension underlying the "creative ability" construct. The first principal component contained about three quarters (74.4%) of the original three units of variance, and was used as a composite measure of creative ability. It was a linear combination of the three subscale scores, with weights such that Total Fluency, Total Flexibility, and Total Originality contributed more or less equally to the score. Higher scores on the composite were reflective of higher levels of fluency, flexibility, and originality in idea generation.

Creative response and comfort. Custom-made tasks were used to assess the tendency to give creative responses and comfort level with tasks that elicit creative thinking. These tasks were designed to resemble performance tasks typically encountered on classroom assignments. Participants were asked to read two poems[1] and to answer questions about them.

Creative response. The tendency to give creative responses was indicated by a participant's responses to analytical questions and interpretive questions about the poems. Analytical questions asked participants to deduce the poet's intended meanings.

[1] The poems used in this study were "Spring Pools" by Robert Frost and "My Papa's Waltz" by Theodore Roethke. Copies of the test can be obtained from the author.

Interpretive questions asked participants to construct their own meanings. Participants' responses were categorized, according to style as well as accuracy, into three groups: insightful, concrete, and inappropriate. Insightful responses interpreted the poem's meanings in a broader context and used excerpts from the text to support the participants' interpretations. Concrete responses focused on literal meanings of the poem and cited excerpts from the text in place of participants' interpretations. Inappropriate responses were incorrect and/or did not address the question.

A composite score for "creative response" was constructed using a principal components analysis of participants' responses to analytical questions and interpretive questions averaged between the two poems, respectively. Consistent with the moderate correlation ($r = 0.478$, $p < .0001$) between average ratings for analytical questions and average ratings for interpretative questions, there appeared to be one single dimension underlying this construct. The first principal component contained about three quarters (73.9%) of the original two units of variance, and was used as a composite measure of creative response. It was a linear combination of the two subscale scores, with weights such that participants' responses to analytical questions and participants' responses to interpretative questions contributed equally to the score. Higher scores on the composite represented higher ratings (insightful), rather than lower ratings (concrete and inappropriate), on responses to analytical questions and interpretive questions about poems.

Comfort. Comfort level with tasks that elicit creative thinking was indicated by a participant's preference for question types and confidence about his/her task performance.

Participants were asked to indicate their preference for analytical versus interpretive questions and for multiple-choice versus free-responses questions. Participants were also asked to rate, on a five-point Likert scale, how confident they felt about having answered a multiple-choice question about poem mechanics correctly. The multiple-choice question was difficult in the sense that all of the answer choices sounded reasonable, so choosing the correct response required a comprehensive understanding of the text and not just factual recall.

Prior to compositing, I imputed missing values for thirty-one cases in which question type preferences were missing. Questions eliciting question type preferences were identical for both poem question sets. In cases in which participants indicated their question type preferences for only one poem question set, I replicated participants' question type preferences between poem question sets. Specifically, the participant's preference for analytical versus interpretive questions was duplicated between poem question sets in twenty-one cases and the participant's preference for multiple-choice versus free-response questions was duplicated between poem question sets in seventeen cases.

A composite score for "comfort" was constructed based on a principle components analysis of participants' question type preferences and confidence levels averaged between the two poems, respectively. Inter-correlations among these variables were relatively weak (low $\underline{r}$ =.07; high $\underline{r}$ =.20). However, a principal components analysis revealed one single dimension underlying this construct. The first principal component contained almost half (42.1%) of the original three units of variance, and was retained as a

composite measure of comfort. It was a linear combination of the three subscale scores, with weights such that participants' question type preferences contributed slightly more to composite "comfort" scores than did participants' confidence ratings. Higher "comfort" scores represented higher levels of confidence about one's performance on tasks that elicit creative thinking, a preference for interpretive questions over analytical questions, and a preference for free-response questions over multiple-choice questions.

Question predictor

Interpersonal dependency. Interpersonal dependency was assessed using the Interpersonal Dependency Inventory[2] (Hirschfeld et al., 1977), which contains forty-eight items clustered into three empirically-derived sub-scales: 1) Emotional Reliance on Another Person, 2) Lack of Social Self-Confidence, and 3) Assertion of Autonomy. Hirschfeld et al. (1977) reported split-half reliabilities for these scales of 0.87, 0.78, and 0.72, respectively.

The Emotional Reliance on Another Person subscale contains eighteen items that assess both levels of attachment to, and dependency on, a single other person. Items related to attachment express a wish for contact with and emotional support from specific other persons ("I need to have one person who puts me above all others") and a dread of loss of that person ("I have always had a terrible fear that I will lose the love and support of people I desperately need"). Items related to dependency involve a general wish for

[2] The NEO Personality Inventory was not used in this study because its five general dimensions (also known as the "Big Five" have the broader goal of giving "a full and accurate assessment of basic personality traits" (McCrae & Costa, 1991, p.369) whereas this study focused on a particular personality attribute that required more specific assessment. Further work might profitably use the NEO to show where the interpersonal dependency construct might fit in the more general picture of personality structure provided by the Big Five.

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approval and attention from others ("I'm never happier than when people say I've done a good job").

The Lack of Social Self-Confidence subscale contains sixteen items that assess self-confidence in social situations and the tendency to rely on others for social support. For instance, these items express the wish for help in decision-making ("When I have a decision to make, I always ask for advice"), in social situations ("In social situations I tend to be very self-conscious"), and in taking initiative ("I would rather be a follower than a leader").

The Assertion of Autonomy subscale contains fourteen items that assess indifference to or independence from other people's evaluations. In contrast to items in the first two scales, the items comprising this scale deny attachment to and dependency on others. For instance, these items assert preferences for being alone, ("I prefer to be by myself") and for independent behavior ("Even when things go wrong I can get along without asking for help from my friends"). Items from this scale also express the conviction that the subject's self-esteem does not depend on the approval of others ("I don't need other people to make me feel good").

Participants responded to the items comprising the Interpersonal Dependency Inventory on a four-point Likert scale ranging from "very characteristic of me" to "not characteristic of me." Item scores were adjusted so that higher scores indicated higher levels of dependency. Overall dependency scores ranging from 1 (low dependency) to 4 (high dependency) were derived for all participants by averaging their responses across all forty-eight items. Higher interpersonal dependency scores represented lower levels of

Assertion of Autonomy and higher levels of Emotional Reliance on Another Person and Lack of Social Self-Confidence.

For six cases in which dependency scores were missing because participants failed to complete all 48 items comprising the inventory, an overall dependency score was computed for each participant by averaging his/her responses across the items that (s)he did complete.

Control predictors--Age and gender

Studies have suggested that age partially accounts for differences in creative performance (Alexander, 1994) and creative thinking (Wakefield, 1991). Studies have also suggested that there exist gender differences in cognitive style and conative volition (Fritz, 1992), creative performance (Orieux, 1990), and creativity (Kim, 1995). In light of these findings, I controlled for age and gender in my investigation.

Findings

Descriptive statistics

Summary statistics for dependency, each outcome composite, and the subscales that comprise them appear in Table 1. A closer look at the sample distribution of the data revealed that 1) data for dependency scores were approximately normally distributed, 2) data for "creative ability" scores were skewed towards lower values, 3) data for "creative response" scores were concentrated at the average but otherwise normal, and 4) data for "comfort" scores were bimodal, which could be attributed to the dichotomous nature of the preference questions. Scores for each of the outcome composites were standardized prior to the regression analyses for ease of interpretation.

Bivariate correlation analysis

Estimated bivariate correlations between the outcome composites and dependency are displayed in Table 2. There existed neither a statistically significant relationship between creative ability and dependency, nor between creative response and dependency. Only the relationship between comfort and dependency warranted further attention ($r = -.17$, $p < .10$). My extended analysis therefore focused on this relationship, with the inclusion of control variables.

Multiple Regression Analysis

A taxonomy of nested multiple regression models was fit in order to examine the main effect of dependency on comfort, controlling for age and gender. This taxonomy, which appears in Table 3, yielded the final fitted model (M4).[3] In this model, all estimated regression coefficients were statistically significant, suggesting that variation in comfort scores was explained in part by variation in dependency scores ($t = -2.310$, $p < .05$), age ($t = 2.247$, $p < .05$), and gender ($t = -1.948$, $p < .05$). Furthermore, this final model, which explained approximately 9.17% ($R^2=0.0917$) of the variation in comfort scores, suggested that additional variables unaccounted for in this study also contribute greatly to the variation in comfort scores.

Consistent with my initial hypotheses, there appeared to be a credible relationship in my sample between comfort with tasks that elicit creative thinking and interpersonal dependency, controlling for age[4] and gender. Figure 1 displays the fitted relationship for males and females separately. Participants with higher levels of interpersonal dependency

[3] Although not shown in Table 3, I also tested for the presence of two-way interactions between the question predictor and each of the controls. Neither of these interactions was statistically significant.
[4] Age was set at the sample average.

tended to feel less comfortable with tasks that elicit creative thinking while participants with lower levels of interpersonal dependency tended to feel more comfortable with tasks that elicit creative thinking. Although the relationship is similar for males and females, females tended to have higher levels of interpersonal dependency than males, on average.

Sensitivity Analysis

Inspection of sample influence statistics associated with the final model suggested that a number of atypical datapoints were present in the dataset. Table 4 displays the Cook's D statistic and studentized PRESS residual for each aberrant case. All atypical datapoints were extreme on the outcome variable. There was no reason to believe that atypical datapoints were mistakes created by inaccuracy or failure of measurement. Removal of atypical datapoints singly and in groups did not seriously disturb the overall findings for any of the three final fitted models (for creative ability, creative response, and comfort). Table 5 displays the estimated regression coefficients for Model 4 (M4) before and after the removal of atypical data points, singly and in groups. At worst, findings were only slightly weakened when outliers were removed. At best, findings were considerably strengthened when outliers were removed. In text, therefore, results of analyses on the entire sample have been reported.

Discussion

Consistent with initial hypotheses, results of this study indicate that participants with higher levels of interpersonal dependency 1) showed no tendency to be more or less fluent, flexible, and original in their idea generation, 2) showed no tendency to give responses that were more or less creative, and 3) tended to feel less comfortable with

tasks that elicit creative thinking, as compared to their counterparts with lower levels of interpersonal dependency.

The first two findings suggest that interpersonally dependent students are capable of both generating creative ideas and responding creatively in certain situations. However, testing conditions in this study differed from typical classroom situations where a student's performance may have more direct consequences on achievement outcomes. For this reason, the third finding is particularly interesting. The tendency of interpersonally dependent students to feel less comfortable with tasks that elicit creative thinking suggests that interpersonally dependent students may, in practice, be less likely to use creative thinking in learning. Why might this be the case?

I believe that creative thinking involves risk in the sense that creative ideas, by definition, tend to deviate from the norm. It is conceivable that interpersonally dependent students may view tasks that elicit creative thinking as threatening their likelihood of obtaining the approval they seek. In other words, interpersonally dependent students may be motivated by what Elliott and Dweck (1988) have called "performance goals" and may be more likely to adopt what Nicholls (1989) has called an "ego orientated" approach to learning. In terms of teacher practice, my results suggest that teachers might encourage creative thinking by rewarding the expression of creative ideas with the praise that interpersonally dependent students desire. However, these notions are speculative, and deserve further research attention. Future studies may also consider additional factors, personality and social, that contribute to how students learn to learn in the classroom. It is hoped that an increased understanding of individual differences in students' achievement

motivation and behavioral tendencies will help educators to foster the development of more effective learning strategies in the classroom.

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Table 1

Descriptive Statistics on Demographic Information, Dependency, Creative Ability, Creative Response, Comfort and the Variables From Which They are Comprised

Variable	Sample (n)	Mean	SD	Low	High
Background					
Age (in years)	134	16.52	0.83	15	18
Gender (female=0; male=1)	134	0.34	0.48	0	1
Class (year in school)	134	11.25	0.71	10	12
Grades (< C's=1; A's=6)	134	5.16	0.96	2	6
Interpersonal dependency					
Emotional reliance on another	134	43.44	8.89	20	65
Lack of social self-confidence	134	30.83	7.43	18	51
Assertion of autonomy[a]	134	40.28	5.82	22	54
Overall dependency	**134**	**2.39**	**0.32**	**1.67**	**3.21**
Creative ability					
Total fluency	134	27.81	10.45	9	58
Total flexibility	134	8.92	2.77	3	18
Total originality	134	9.40	6.19	0	36
Creative ability composite	**134**	**0**	**1**	**-1.79**	**3.23**
Creative response					
Average analysis rating	133	0.98	0.46	0	2
Average interpretation rating	133	1.1	0.51	0	2

Creative response composite	**133**	**0**	**1**	**-2.49**	**2.30**
Comfort					
Average confidence rating	120	3.50	.81	1.5	5
Average question type preference I (analysis=3; interpretation=4)	120	3.59	.38	3	4
Average question type preference II (multiple-choice=1; free-response=3)	120	2.28	.91	1	3
Comfort composite	**120**	**0**	**1**	**-2.41**	**1.80**

[a]Assertion of autonomy scores were inverted so that higher scores indicated higher levels of dependency.

Table 2

Estimated Bivariate Correlations Between Each Outcome and the Principal Question Predictor

Outcome	Correlation with dependency
Creative ability	.07
Creative response	-.11
Comfort	-.17~

~p<.10

Table 3

Taxonomy of Fitted Multiple Regression Models Predicting Comfort From the Main Effects of Dependency (DEPEND) and Selected Control Variables: Age and Gender

Predictor	Model			
	M1	M2	M3	**M4, final model**
Intercept	-3.72*	0.07	-3.84*	**-2.20**
Control predictors				
Age	0.23*		0.24*	**0.24***
Male		-0.22	-0.25	**-0.38***
Question predictor				
Dependency				**-0.67***
R-square statistic	.0358	.0104	.0499	**.0917**
F-value	4.385*	1.244	3.071*	**3.903***
Degrees of freedom	1, 118	1, 118	2, 117	**3,116**

*p<.05.

Table 4

Examination of Atypical Datapoints in the Analysis of the Relationship Between Comfort and Dependency

Aberrant Case	Cook's D		RStudent
	observed	sample average	
195	0.058	0.008	-2.30
230	0.052	0.008	-2.06
253	0.073	0.008	2.44

Table 5

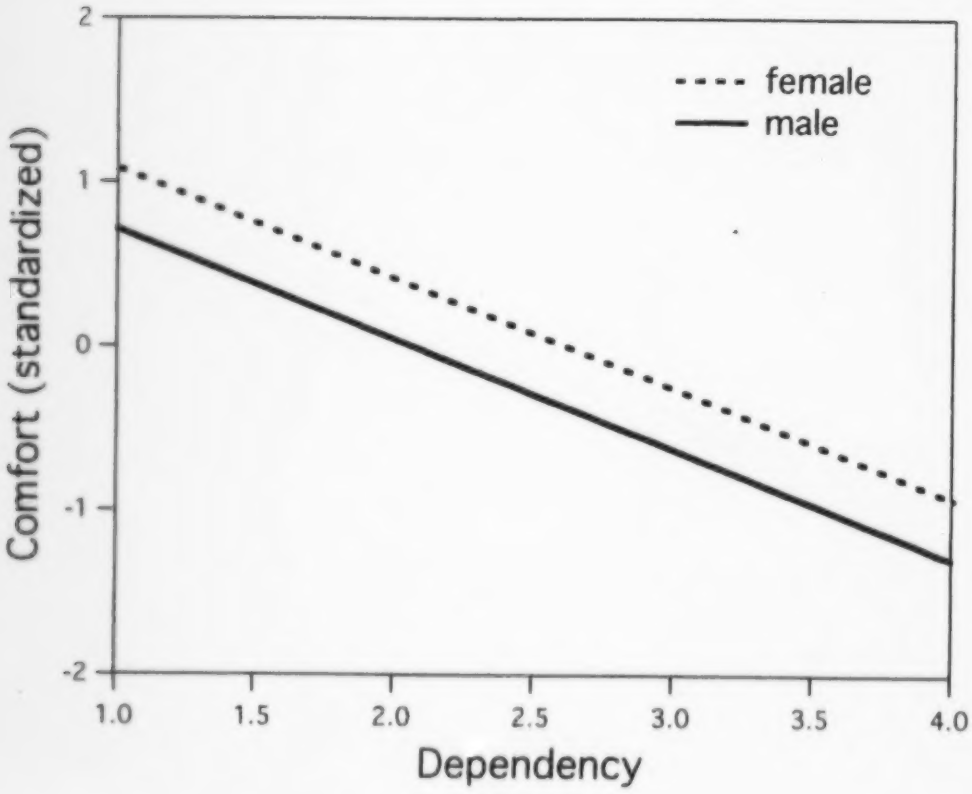
Fitted Multiple Regression Models Predicting Comfort by Dependency and the Control Variables, Before (M4) and After (M4A-G) the Removal of Atypical Datapoints Singly and in Groups

Predictor	Model							
	M4	M4A	M4B	M4C	M4D	M4E	M4F	M4G
Case(s) Omitted	-	253	195	230	253,195	253,230	195,230	253,195,230
Intercept	-2.20	-2.13	-1.73	-1.73	-1.65	-1.69	-1.26	-1.21
Control predictors								
Age	0.24*	0.25*	0.22*	0.20	0.23*	0.22*	0.19	0.20*
Male	-0.38*	-0.38*	-0.34	-0.39*	-0.34	-0.39*	-0.35	-0.34
Question predictor								
Dependency	-0.67*	-0.80**	-0.74*	-0.61*	-0.88**	-0.74*	-0.69*	-0.82**
R-square statistic	0.0917	0.1120	0.0959	0.0787	0.1195	0.0971	0.0818	0.1035
F-value	3.903**	4.835**	4.065**	3.276*	5.155**	4.089**	3.386*	4.349**
df	3,116	3,115	3,115	3,115	3,114	3,114	3,114	3,113

*$p < .05$. **$p < .01$.

Figure Caption

Figure 1. Fitted regression lines predicting comfort from dependency, controlling for age and gender.


female
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Comfort (standardized)
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Dependency